

Application No. 10/630,481
Response to Office Action

Customer No. 01933

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claims 1-8 have been canceled, without prejudice, and new claims 9-15 have been added.

Independent claim 9 has been added based on (now canceled) claim 1 and has been prepared to recite additional structural features of the printed board and transmission line type noise filter, as supported by the disclosure in the specification at, for example, pages 6-9.

Claim 10 has been added based on (now canceled) claim 2 to recite an additional transmission line type noise filter connected between additional power supply lines to the integrated circuit. See, for example, Fig. 1.

Claim 11 has been added to recite a connection between the integrated circuit and the first power supply line from the transmission line type noise filter, as shown in, for example, Fig. 13.

And claims 12-15 have been added based on the subject matter of claims 3-5 and 8, respectively.

No new matter has been added, and it is respectfully requested that new claims 9-15 be approved and entered.

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THE PRIOR ART REJECTION

Claims 1 and 2 were rejected under 35 USC 102 as being anticipated by USP 5,068,631 ("Vince"); claims 3-6 were rejected under 35 USC 103 as being obvious in view of the combination of Vince and uSP 6,333,844 ("Nakamura"); claim 7 was rejected under 35 USC 103 as being obvious in view of the combination of Vince and USP 6,288,889 ("Komatsu et al"); and claim 8 was rejected under 35 USC 103 as being obvious in view of the combination of Vince, Komatsu et al and Nakamura. These rejections, however, are respectfully traversed with respect to the new claims set forth hereinabove.

According to the present invention as recited in new independent claim 9, an electronic circuit is provided which comprises: an integrated circuit having a power supply terminal; a transmission line type noise filter disposed adjacent to the integrated circuit for removing noise in a wide frequency range; and a printed board having a pattern through which power is supplied to the power supply terminal of the integrated circuit through the transmission line type noise filter.

As recited in new independent claim 9, the transmission line type noise filter comprises: an anode member comprising a valve-action metal; a dielectric film comprising an oxidized film of the valve-action metal; a conductive layer including a solid electrolyte layer as a cathode disposed over the dielectric film;

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and first and second anode terminals at respective ends of the anode member.

And as recited in new independent claim 9, the printed board comprises a power line layer having a power supply pattern which includes a first power supply line and a second power supply line which are electrically separated, and the power line layer is provided in a different plane from a mounting surface of the transmission line type noise filter and the integrated circuit.

Still further, as recited in new independent claim 9, the transmission line type noise filter is electrically connected at the first anode terminal thereof to the first power supply line, which is electrically connected to the power supply terminal of the integrated circuit, and the transmission line type noise filter is electrically connected at the second anode terminal thereof to the second power supply line, which is electrically connected to a DC power supply.

With this structure, the number of capacitors and mounting areas for the noise filter can be reduced because the transmission line type noise filter provides a sufficient decoupling function between the DC power supply and the LSI.

As recognized by the Examiner, Vince discloses an LSI, a noise filter, and a printed circuit board. It is respectfully submitted, however, that Vince does not disclose a transmission

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line type noise filter in the manner of the claimed present invention.

That is, according to the present invention as recited in new independent claim 9, the noise filter is a transmission line type noise filter which is connected between a first power supply line, that is connected to the integrated circuit and a second power supply line, that is connected to a DC power supply. Thus, DC current from the power supply flows in the second anode terminal of the transmission line type noise filter, flows out from the first anode terminal, and is then supplied to the LSI.

By contrast, the noise filter of Vince uses conventional capacitors such as a ceramic capacitor, and DC current never flows through the capacitors. That is, according to Vince the decoupling capacitors 107-1 to 107-4, for example, are connected to the power plane 105 at one end, and are connected to ground system 103 at the other end. The capacitors of Vince, therefore, are clearly not positioned between first and second power supply lines of a power line layer in the manner of the present invention as recited in new independent claim 9, and Vince clearly does not disclose a transmission line type noise filter in the manner of the claimed present invention.

In addition, it is respectfully submitted that contrary to the Examiner's assertion on page 4 of the Office Action, Nakamura does not disclose a transmission line type noise filter in which

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first and second anode terminals at respective ends of an anode member (as recited in claim), connected to first and second ends of a metal fine wire (as recited in claim 12). Instead, Nakamura discloses that external leads 2 and 3 (the anode terminals of the present invention, according to the Examiner) are connected to the anode lead 11 and cathode 12. That is, external lead 2 is an anode terminal, and external lead 3 is a cathode terminal, not a second anode terminal. See Fig. 1(b). Thus, Nakamura merely discloses a solid electrolyte capacitor, and does not disclose teach or suggest a transmission line type filter in the manner of the claimed present invention.

It is respectfully submitted, moreover, that Komatsu et al merely discloses an aluminum electrolytic capacitor.

In view of the foregoing, it is respectfully submitted that the present invention as recited in new independent claim 9, and claims 10-15 depending therefrom, clearly patentably distinguishes over Vince, Nakamura and Komatsu et al, taken singly or in any combination consistent with the respective fair teachings thereof, under 35 USC 102 as well as under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

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If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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